REMARKS

Claims 1-39 were pending. Claims 1, 4, 13-17, 26, 33, and 39 have been amended. Accordingly, claims 1-39 remain pending subsequent entry of the present amendment.

Claim Objections

In the present Office Action, claims 1, 14-17, 26, 33 and 38-39 are objected to due to informalities. Applicant believes the amendments to the claims overcome the objections.

35 U.S.C. § 112 Rejections

Claims 1, 13, 26, and 33 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 was rejected for lack of antecedent basis in reciting "the computed value". Applicant has amended claim 1 to recite "the value" which is supported by at least the prior recited "a value".

Claim 1 was rejected for lack of antecedent basis in reciting "the input data functions". Applicant respectfully traverses this rejection. It would appear the examiner has construed "the input data functions" to be a noun(s). However, the term "functions" in the recitation is in fact a verb. Accordingly, "computation of the input data" *functions to* "enable identification" etc. Applicant believes the recitation to be sufficiently clear and requests withdrawal of the rejection.

Claim 1 was rejected for lack of antecedent basis in reciting "functional units". However, Applicant submits this rejection is improper as the recitation includes no definite article (e.g., "the") which would require antecedent basis. Accordingly, Applicant traverses this rejection and requests its withdrawal.

Claim 13 was rejected for lack of antecedent basis in reciting "the functional units". However, Applicant notes "functional units" appears in the preamble of claim 13. Therefore, Applicant submits the rejection is improper and requests its withdrawal.

Claim 13 was rejected for lack of antecedent basis in reciting "the computed value". Applicant's amendment to claim 13 is believed to overcome the rejection.

Claim 26 was rejected for lack of antecedent basis in reciting "the hosting cluster". Applicant's amendment to claim 26 is believed to overcome the rejection.

Claim 33 was rejected for lack of antecedent basis in reciting "one of two components". However, Applicant submits this rejection is improper as the recitation includes no definite article (e.g., "the") which would require antecedent basis. Accordingly, Applicant traverses this rejection and requests its withdrawal.

Applicant submits that by the above clarifying amendments no new matter has been introduced and the scope of the claims has not been reduced.

35 U.S.C. § 102 and § 103 Rejections

In the present Office Action, claims 1-7, 9-12, 13-19, 21-36, and 38-39 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,249,801 (hereinafter "Zisapel"). Further, claims 8, 20, and 37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Zisapel. Applicant respectfully traverses the above rejections and requests reconsideration in view of the following discussion.

Generally speaking, the examiner seeks to equate a geographically dispersed network of Zisapel including server farms, load balancers, clients, and so on, with the presently claimed features of a multi-streaming processor and processor core. However, the nature of the network system of Zisapel is quite different from that of the presently claimed invention, and the features of the presently claimed invention are readily distinguished from the cited art. For example, in Zisapel it is stated that "[t]he present invention relates to computer networks in general, and in particular to load balancing client requests among redundant network servers in different geographical locations." (Zisapel, col. 1, lines 4-7). In contrast, Applicant believes it is clear that the presently claimed invention is generally directed to a processor and processor core, and methods therein. For example, Applicant describes "[o]ne of the challenges to processing data packets at high speeds is to be able to implement functional resources within a processing core using less real estate (silicon/circuitry) than is typically used. Another challenge, at least in multi-streaming processors, is how to optimize (speed up) parallel processing of multiple data packets from separate packet flows while sharing resources in a processing core." (Description, page 4, lines 11-16). Applicant believes distinctions between the claimed invention and the cited art are clear from both the language of the claims and the specification. For example, claim 1 recites "a multi-streaming processor" and "functional units housed within the multi-streaming processor." As discussed further below, the cited art does not disclose the features as recited.

Claim 1 recites a mechanism which includes "an interface for communicating with a multi-streaming processor." In the Office Action, Zisapel is cited as disclosing these features. In particular, the examiner states that Zisapel discloses:

> "an interface (proximity table, see element 54, Fig. 2A and col. 6, lines 30-39) for communicating with a multi-streaming processor (load balancer LB1/server farm, see col. 6, lines 29-43 and Fig. 2A)." (Office Action, page 4).

The above cited portions of Zisapel are reproduced below:

> "Typical operation of the network proximity load balancing system of FIGS. 2A-2F is now described by way of example. As is shown more particularly with reference to FIG. 2A, client 26 is shown sending request 28, such as an FTP or HTTP request, to LB1 whose virtual IP address is 100.100.1.0. LB1 preferably maintains a proximity table 54 indicating subnets and the best server farm site or sites to which requests from a particular subnet should be routed. Determining the "best" site is described in greater detail hereinbelow.
>
> Upon receiving a request, LB1 may decide to service the request or not based on normal load balancing considerations. In any case, LB1 may check proximity table 54 for an entry indicating the subnet corresponding to the subnet of the source IP address of the incoming request." (Zisapel, col. 6, lines 30-44).

In addition to the above, Zisapel discloses:

> "Server farms 10 and 12 typically comprise a load balancer 16 and 18 respectively, which may be a dedicated load balancer or a server or router configured to operate as a load balancer, with each of the load balancers being connected to one or more servers 20. Load balancers 16 and 18 are alternatively referred to herein as LB1 and LB2 respectively. LB1 and LB2 typically maintain a server status table 22 and 24 respectively, indicating the current load, configuration, availability, and other server information as is common to load balancers. LB1 and LB2 also typically periodically receive and maintain each other's overall status and load statistics such that LB1 and LB2 can know each other's availability." (Zisapel, col. 5, lines 15-27).

From the above disclosure it can be seen that Zisapel describes a server farm (10) which includes a load balancer (LB1). Applicant does not find disclosure of the recited "multi-streaming processor" in Zisapel. It is noted that on page 4 of the Office Action the examiner equates the pool of contexts with the load balancers LB1, LB2, and LB3 of Zisapel, a server farm is equated with a context, and the "load balancer LB1/server farm" is equated with the multi-streaming processor. However, claim 1 recites the processor hosts the pool of contexts. Therefore, even were one to accept the examiner's reasoning, as the LB1/server does not host LB1, LB2, and LB3, Applicant submits claim 1 is patentably distinguishable. Further, there is nothing in Zisapel which discloses or

suggests "functional units housed within the multi-stream processor". For at least these reasons, claim 1 is patentably distinguishable from the cited art. Each of independent claims 13 and 26 are also distinguishable from similar reasons. Further, each of claim 13 and 26 recite a processor core, and functional units within the processor core. Such features are nowhere disclosed or suggested by Zisapel, and each of these claims are further distinguished for these reasons.

Still Further, claim 1 recites "context selections made over a period of time facilitate balancing of load pressure on functional units housed within the multi-streaming processor." In contrast, the system and method of Zisapel may serve to balance load pressure among server farms. For example, Zisapel discloses:

> "As was described above, a load balancer that receives a request from a client may check proximity table 54 for an entry indicating the subnet corresponding to the subnet of the source IP address of the incoming request. Thus, if a corresponding entry is found in proximity table 54, the request is simply routed to the location having the best network proximity. Although the location having the best network proximity to a particular subnet may have already been determined, the load balancer may nevertheless decide to forward an incoming request to a location that does not have the best network proximity should a load report received from the best location indicate that the location is too busy to receive requests." (Zisapel, col. 7, lines 35-47). (emphasis added).

Accordingly, Zisapel merely discloses load balancing among geographically disparate locations. Zisapel does not disclose the balancing load pressure on functional units housed within a processor as recited. Therefore, claim 1 (and claim 13 for similar reasons) is distinguishable for these reasons as well. In addition, claim 26 recites "clusters on the core of the processor" and balancing the load of the functional units within "each cluster". Therefore, claim 26 is also patentably distinct for these reasons as well.

In addition to the above, claim 26 recites "arranging the functional units into two or more separate clusters on the core of the processor, each of said clusters containing an equal number of contexts that may write to functional units which are hosted by a corresponding cluster." Zisapel is cited as disclosing these features. However, Zisapel merely discloses:

> "The load balancer is provided as a gateway to several redundant servers typically situated in a single geographical location and referred to as a "server farm" or "server cluster." (Zisapel, col. 1, lines 32-35).

Therefore, Zisapel describes a server farm as a cluster. Further, there is nothing in Zisapel which discloses or suggests arranging functional units into clusters on the core of the processor. Such features are wholly absent from the cited art. Accordingly, claim 26 is patentably distinguishable for these further reasons. As each of dependent claims 4 and 16 include similar features, each of these claims are distinguished for similar reasons as well.

Applicant submits each of independent claims 1, 13, and 26 are patentably distinguished for at least the above reasons. As the dependent claims include at least the features of the independent claims upon which they depend, they are likewise distinguished for at least the above reasons. In addition to the above, the dependent claims recite additional features which are not disclosed or suggested by the cited art. Some examples of such features are provided in the following discussion.

Each of claims 6, 18, and 35 recite features regarding processing streams which are stalled and the reason for the stall. It is suggested that Zisapel discloses these features at col. 7, lines 36-52. However, the cited disclosure of Zisapel merely states that a request may be forwarded to a location that does not have the best network proximity if a report from the best location indicates it is too busy to receive requests. Applicant submits information that a processing stream is stalled is not equivalent to a report that a location may be too busy to receive requests. In addition, Zisapel includes no disclosure concerning a reason for a stalled processing of a stream.

As already discussed, the cited art does not disclose or suggest the pool of contexts divided into clusters in the processor. Therefore, the additional features regarding such clusters as recited in claims 11, 12, 23, and 24 are nowhere disclosed. For example, claims 11 and 12 recite a distribution of functional units which are symmetric and asymmetric, respectively. Claim 4, upon which each of claims 11 and 12 depend, recites the functional units are included in clusters which are in the processor. Zisapel includes no such teachings.

Finally, Applicant submits the features of claims 8, 20, and 37 are neither disclosed nor suggested by the cited art. For example, claim 8 recites the additional features "wherein the input data into the computation circuitry further includes statistical data about the distribution of instruction types associated with individual ones of previously processed and similar data packets." In the Office Action it is generally suggested that because Zisapel discloses both DNS requests and HTTP requests, it somehow would have been obvious to modify Zisapel so that the computation circuitry further includes statistical data about the distribution of instruction types associated with individual ones of previously processed and similar data packets. Applicant disagrees. Zisapel includes no such suggestion and Applicant believes the rejection to be based on hindsight. As already discussed, Zisapel generally discloses requests may be forwarded to a server farm based on proximity. There is nothing in Zisapel that suggests the features above.

CONCLUSION

Applicant submits the application is in condition for allowance, and an early notice to that effect is requested.

Respectfully submitted,

/James W. Huffman/

James W. Huffman
Reg. No. 35,549
ATTORNEY FOR APPLICANT(S)

Date: 3/15/06